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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,952

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Sho Kumagai

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SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

LANGMAN, JONATHAN C

ART UNIT

PAPER NUMBER

1794

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,952	<b>Applicant(s)</b> KUMAGAI ET AL.	
	<b>Examiner</b> JONATHAN C. LANGMAN	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) 4-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al (US 5,904,778) in view of Otsuki et al. (US 6,090,733) in view of Inaba et al. (US 5,937,316).

Lu teaches a bulk SiC which is inexpensive and a strong support structure used for a substrate where CVD SiC is deposited. The CVD SiC has advantages in plasma processing and may be tailored for particular uses (abstract). The SiC body is made by sintering a mixed powder of silicon carbide, and a sintering aid (col. 3, lines 59-col. 4, lines 14). Lu teaches that the sintering aid is pliable but does not mention that it is nonmetallic.

Non metallic sintering aids are known in the art of forming sintered SiC compacts and are obvious to use in Lu. See at least the abstract of Otsuki et al. (6,090,733). Furthermore, Otsuki teaches that by using nonmetallic sintering aids in SiC as opposed to using metallic sintering aids, the resultant SiC will have less contamination (col. 3, lines 12-18). Accordingly, it would have been obvious to one having ordinary skill in the

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art to employ non-metallic sintering aids in the SiC compact of Lu, since Otsuki teaches that such sintering aids are conventionally used in the art and, moreover, that non-metallic sintering result in compacts having desirable properties, e.g., less contamination (Otsuki, col. 3, lines 12-18).

Lu et al. does not mention using the composite article as a dummy wafer, as recited in the preamble of the present claims. However, this limitation is merely an intended use and is not considered to distinguish over the applied prior art. The articles of Lu and the instantly claimed article are substantially the same and therefore it is the examiners position that the article of Lu can function as a dummy wafer.

Furthermore Inaba et al. teach “[s]ince silicon carbide excels in heat resistance, the frequency of its use is increasing for applications that include, for example, a susceptor, a wafer holder, a thermal uniformity plate, a thermal uniformity ring, and a dummy wafer. To obtain silicon carbide with purity levels equivalent to that of quartz glass to be used for such applications, generally a CVD-SiC film (CVD-SiC film silicon carbide film formed by the method of Chemical Vapor Deposition) is formed on the surface of an SiC substrate” (emphasis added) (col. 1 lines 10-20). Therefore it would have been obvious to a person having ordinary skill in the art at the time the present invention was made to use the article of Lu et al. as a dummy wafer since it has been shown in the art that these articles are used as dummy wafers.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al (US (5,904,778), Otsuki et al. (US .6,090,733), and Inaba et al. (US 5,937,316) as applied above to claim 1.

Lu, Otsuki, and Inaba do not specifically teach coating the whole perimeter of the surface of the dummy wafer including the side surface of the dummy wafer. However it would have been obvious to a person having ordinary skill in the art at the time the present invention was made to coat all sides of the sintered SiC in order to seal the entire compact. SiC has open pores and coating the entire surface area would seal the pores.

During semiconductor processing steps, these pores would offer sites for contamination and lower the production lives of dummy/monitor wafers. Sintered SiC also has high contents of impurities as is known in the art; much higher concentrations than CVD SiC

By coating the entire sintered substrate with CVD SiC, one would obtain increased resistance to known chemicals and atmospheres of semiconductor manufacturing apparatuses. Such endeavor would likely increase productivity by producing higher numbers of non contaminated wafers when CVD SiC coated dummy wafers are used alongside production wafers in manufacturing.

### ***Response to Arguments***

The applicant has perfected their claim to foreign priority document JP-2003-184867 and therefore Kazutoshi does not qualify as a reference. The rejections involving Kazutoshi have been withdrawn.

All rejections in regards to claims 3 and 8 have been withdrawn in light of the applicant cancelling claims 3 and 8.

Applicant's arguments in regards to Lu, Otsuki and Inaba, filed March 3, 2009, have been fully considered but they are not persuasive.

The applicant argues that one skilled in the art would not be motivated to modify Lu based on Otsuki to arrive at the claimed invention. The applicant asserts that Lu discloses the use of a metallic sintering auxiliary. This statement is unfounded. The Examiner can not find where Lu specifically teaches a metallic sintering aid. On the contrary it is the Examiners position that Lu only discloses a generic sintering aid, and does not disclose whether it is metallic or nonmetallic. It is further the Examiners position that a routineer in the art would have appreciated the use of any known sintering aids, in order to aid in the sintering of Silicon carbide. Specifically, Otsuki teaches using non metallic sintering aids which aids in the reducing contamination by metal impurities (see the rejection originally set forth and presented above).

The applicant asserts that one skilled in the art would not be motivated to use the non metallic sintering agent of Otsuki in the configuration of Lu, since this would fundamentally alter the article of Lu in that it would result in the undesirable particle size and additional pores.

The Examiner can not find in the Lu reference, the express teaching of desired particle size and additional pores.

It was and still is the Examiners position that a routineer in the art would be motivated to use any known sintering aid for the bulk sintered compact SiC of Lu,

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especially a non metallic Sintering aid as taught by Otsuki since, Otsuki teaches that non metallic sintering aids are known in the art to aid in sintering compacts of SiC, and further reduce contamination of the sintered compact, which is an express goal of Lu (Lu, col. 4. lines 1-14).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. LANGMAN whose telephone number is (571)272-4811. The examiner can normally be reached on Mon-Thurs 8:00 am - 6:30 pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCL

/Timothy M. Speer/  
Primary Examiner, Art Unit 1794